

FLUXLESS DIE-TO-HEAT SPREADER BONDING  
USING THERMAL INTERFACE MATERIAL

ABSTRACT OF THE DISCLOSURE

5        A thinned semiconductor die is coupled to an integrated heat spreader with thermal interface material to form a semiconductor package. The method for forming the package comprises forming a metallization layer on a backside of a thinned semiconductor die. A thermal interface portion, including a solder layer including a fluxlessly-capable solder such as AuSn, is formed on a topside of the integrated heat spreader. The metallization layer and  
10      the solder layer are then forced together under load and heat without flux to bond the semiconductor die to the integrated heat spreader.